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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,709	09/08/2003	Kuo-Hsing Teng	67,200-1150	2302

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EXAMINER
BUEKER, RICHARD R

ART UNIT PAPER NUMBER

1763

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/658,709

Applicant(s)

TENG ET AL.

Examiner

Richard Bueker

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 9-11, 13 and 17-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 9-11, 13 and 17-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Claims 20 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 20, lines 2 and 3, the phrase "said plurality of openings disposed above said exposed surface" does not have clear antecedent basis in claim 17, and should be changed to "said plurality of openings, and wherein said plurality of openings are disposed above said exposed surface".

Claims 9-11, 17, 18, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (5,733,375) taken in view of Yamaguchi (5,803,938) (Figs. 18 and 19 and col. 27, line 44 to col. 28, line 23) or Martin (3,608,280) (Fig. 2). Yamaguchi and Martin teach the use of nozzle plates to supply gas to a vaporizer. It would have been obvious to use a nozzle plate in Fukuda's apparatus, because Yamaguchi and Martin teach that such a plate can be successfully used to supply gas to a vaporizer. The carrier gas ejected by the nozzle plates of Yamaguchi and Martin impinges onto an exposed surface of the liquid.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (5,733,375) taken in view of Yamaguchi (5,803,938) (Figs. 18 and 19 and col. 27, line 44 to col. 28, line 23) or Martin (3,608,280) for the reasons stated above, and taken in further view of applicants' description of the prior art. At page 7, lines 17-22 of applicants' specification the operation of the prior art vaporizer illustrated in applicants' Fig. 1 is described as having carrier gas supplied "at a pressure of typically about 50 Kpa", which is 375 torr. It would have been obvious to one skilled in the art to operate a vaporizer of the type shown in Fig. 4 of Fukuda at a pressure of less than atmospheric

Art Unit: 1763

pressure because applicants teach that a sub-atmospheric pressure is typically used in this type of vaporizer.

Claims 9-11, 17-18, 22 and 23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fukuda (5,733,375). Fukuda (see Figs. 1-5) discloses a method of generating HMDS primer vapor comprising providing liquid primer in a primer tank and bubbling nitrogen gas through the liquid primer by creating a plurality of streams of nitrogen gas and impacting the plural streams onto an exposed surface of the liquid. The bubble generator 4 is in the form of a plate. A vapor that comprises nitrogen gas and vaporized primer forms above the top surface of the liquid primer, and is then transferred to a downstream process. Regarding the claim 17 recitation of "providing the liquid primer in said tank body to form an exposed surface of said liquid primer, said exposed surface comprising a liquid vapor interface", it is noted that such an exposed surface is formed (and a liquid vapor interface is also formed) in Fukuda's method at the point where the nitrogen gas exits the bubble generator 4 (see Fig. 3 of Fukuda, for example) and contacts (i.e. impacts) the liquid. It is also noted that the top surface of Fukuda's liquid also forms an exposed surface (and a liquid vapor interface), and the plurality of streams of nitrogen gas bubbles that pass through the liquid do impact the exposed top surface as required by claim 17.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (5,733,375) taken in view of applicants' description of the prior art. At page 7, lines 17-22 of applicants' specification the operation of the prior art vaporizer illustrated in

Art Unit: 1763

applicants' Fig. 1 is described as having carrier gas supplied "at a pressure of typically about 50 Kpa", which is 375 torr. It would have been obvious to one skilled in the art to operate a vaporizer of the type shown in Fig. 4 of Fukuda at a pressure of less than atmospheric pressure because applicants teach that a sub-atmospheric pressure is typically used in this type of vaporizer.

Claims 1-3, 5, 9-11, 13, 24 and 25 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tomkins (6,561,498) (see Figs. 1-3, for example) who discloses a vaporizer comprising a liquid tank and a nozzle assembly comprising a gas inlet pipe for receiving a primary gas stream, a housing 11 (see Fig. 2) having a housing interior 10, and a nozzle plate 12, said nozzle plate having a plurality of nozzle openings for receiving the primary gas stream and ejecting a plurality of secondary gas streams onto an exposed surface of the liquid as required by claim 9. Also, the nozzle plate is arranged above the exposed surface of the liquid, as required by claims 2 and 13. It is noted that an exposed surface of liquid is formed at the lower outlet end of each nozzle 13. The vaporizer of Tomkins also has a liquid level sensor and a vapor outlet tube as recited in claims 3, 5, 10 and 11.

Claims 17, 18 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomkins (6,561,498) in view of Fukuda (5,733,375). Tomkins teaches that his bubbler is for vaporizing materials that are conventionally vaporized in bubbler vaporizers. Fukuda teaches that HMDS primer is conventionally vaporized in a

bubbler vaporizer, and therefore it would have been obvious to use Tomkins' vaporizer to vaporize HMDS.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomkins (6,561,498) in view of Fukuda (5,733,375) for the reasons stated above, and taken in further view of applicants' description of the prior art. At page 7, lines 17-22 of applicants' specification the operation of the prior art vaporizer illustrated in applicants' Fig. 1 is described as having carrier gas supplied "at a pressure of typically about 50 Kpa", which is 375 torr. It would have been obvious to one skilled in the art to operate a vaporizer of the type shown in Fig. 4 of Fukuda at a pressure of less than atmospheric pressure because applicants teach that a sub-atmospheric pressure is typically used in this type of vaporizer.

Claims 1, 3, 5, 17, 18, 20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (5,733,375) taken in view of Coombs (1,336,070) or Brunner (545,048) and taken in further view of Tompkins (6,561,498). Coombs and Brunner (545,048) both teach that a vaporizer of the type in which a carrier gas nozzle is located above the liquid surface can be provided with a nozzle assembly having a plurality of carrier gas outlets. The plural gas streams of Coombs and Brunner are directed onto the liquid surface. It would have been obvious to one skilled in the art to provide the vaporizer of Figs. 6 and 7 of Fukuda with a nozzle assembly having plural apertures, because Coombs and Brunner teach that a vaporizer with that type of nozzle assembly can successfully be used as a vapor source. Also, while Coombs (Fig. 2) and Brunner (Figs. 1 and 2) teach the use of a nozzle assembly having a plenum and plural

Art Unit: 1763

gas outlets, they don't teach the use of a nozzle assembly having a plenum plate. Tompkins teaches that a plenum can be formed with a nozzle plate to successfully distribute a plurality of gas streams. It would have been obvious to provide a plenum gas distributor of the type taught by Coombs and Brunner in the form of a plate with plural openings because Tompkins teaches that a plate shaped plenum can successfully be used to distribute carrier gas into plural streams in a vaporizer.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (5,733,375) taken in view of Coombs (1,336,070) and Brunner (545,048) for the reasons stated above, and in further view of applicants' description of the prior art. At page 7, lines 17-22 of applicants' specification the operation of the prior art vaporizer illustrated in applicants' Fig. 1 is described as having carrier gas supplied "at a pressure of typically about 50 Kpa", which is 375 torr. It would have been obvious to one skilled in the art to operate a vaporizer of the type shown in Fig. 6 of Fukuda at a pressure of less than atmospheric pressure because applicants teach that a sub-atmospheric pressure is typically used in this type of vaporizer.

Claims 2, 9-11, 13 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (5,733,375) taken in view of Coombs (1,336,070) and Brunner (545,048) for the reasons stated above, and taken in view of Tompkins (6,561,498). Coombs (Fig. 2) and Brunner (Figs. 1 and 2) teach the use of a nozzle assembly having a plenum and plural gas outlets, but they don't illustrate the use of a nozzle assembly having a plenum plate. Tompkins teaches that a plenum can be formed with a nozzle plate to successfully distribute a plurality of gas streams. It would

Art Unit: 1763

have been obvious to provide a plenum gas distributor of the type taught by Coombs and Brunner in the form of a plate with plural openings because Tompkins teaches that a plate shaped plenum can successfully be used to distribute carrier gas into plural streams in a vaporizer.

Claims 1-3, 5, 9-11, 13, 24 and 25 are rejected under 35 U.S.C. 103(a) as obvious over Coombs (1,336,070) taken in view of Tompkins (6,561,498). Coombs teaches that a vaporizer of the type in which a carrier gas nozzle is located above the liquid surface can be provided with a nozzle assembly having a plurality of carrier gas outlets. The plural gas streams of Coombs is directed onto the liquid surface. In claims 1 and 9, the recitation of a particular type of liquid to be vaporized, and also how the vapor is to be subsequently used, are recitations of intended use that Coombs' vaporizer has an inherent capability of performing. Coombs (Fig. 2) teaches the use of a nozzle assembly having a plenum and plural gas outlets, but they doesn't illustrate the use of a nozzle assembly having a plate. Tompkins teaches that a plenum can be formed with a nozzle plate to successfully distribute a plurality of gas streams. It would have been obvious to provide a plenum gas distributor of the type taught by Coombs and Brunner in the form of a plate with plural openings because Tompkins teaches that a plate shaped plenum can successfully be used to distribute carrier gas into plural streams in a vaporizer.

Applicants have argued that Fukuda, Yamaguchi and Martin all disclose gas bubblers, which operate by a different principle of operation than applicants' invention. It is noted, however, that applicants' claims as written do not exclude bubbler type

Art Unit: 1763

vaporizers, as discussed in the rejections above. Huckstedt (3,669,883) (see col. 3, lines 53-56), McPhee (3,834,682) (see col. 3, lines 28-34), Hansen (1,981,506) (see col. 1, lines 19-23) and Kubo (3,775,302) (see col. 4, lines 55-58) are cited of interest to show that it was commonly recognized in the prior art that a bubble submerged in a liquid has a vapor-liquid interface and that the vapor-liquid interface of a submerged bubble is itself a "surface". At such a bubble surface, the liquid is "exposed" to the gas and also the gas is "exposed" to the liquid. There are many other equivalent examples in the prior art. Therefore, the language used by applicant in their claims does read on a gas bubbler, wherein the bubbles inside of the gas form a vapor-liquid interface having a surface between the vapor and the liquid.

Applicants have argued that Coombs and Brunner are non-analogous art. It is noted, however, that Coombs and Brunner disclose vaporizers. Applicants are claiming a vaporizer. Therefore, Coombs and Brunner are analogous art.

Furthermore, it is noted that analogous art is all art in the field of endeavor plus those arts reasonably pertinent to the particular problem solved by the invention. See In re Pagliaro, 210 USPQ 888; and In re Wood, 202 USPQ 171. By this well-known rule, Coombs and Brunner are clearly analogous art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parvis Hassanzadeh can be reached on (571) 272-1435. The fax phone

Art Unit: 1763

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard Bueker
Primary Examiner
Art Unit 1763